

Amendment
10/600,694

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5000-1-400

IN THE CLAIMS:

Kindly replace the claims of record with the following full set of claims:

1.-9. (Cancelled)

10. (Currently amended) A passive optical network system comprising a central office, a local office, and a plurality of subscriber terminals, the local office and the central office being connected to each other through an optical fiber, the subscriber terminals being connected to the local office, the central office providing optical communication service to the subscriber terminals through the local office, the local office comprising:

a first wavelength division multiplexer for:

receiving that receives multiplexed signals including pumping optical signals from the central office, and divides demultiplexing the received multiplex signals into respective downstream optical signals for downstream data service, broadcasting optical signals for broadcasting service and the pumping optical signals by demultiplexing the multiplexed signals, and

the first wavelength division multiplexer multiplexing upstream data service signals transmitted from the subscriber terminals;

an optical amplifier media that receives the broadcasting optical signals and the pumping optical signals from the first wavelength division multiplexer, such the broadcasting optical signals are amplified by the pumping optical signals;

a second wavelength division multiplexer that multiplexes the broadcasting optical signals amplified by the optical amplifier media and the downstream optical signals divided by the first wavelength division multiplexer, the second wavelength division multiplexer demultiplexing the upstream data service signals transmitted from the subscriber terminals; and

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an optical divider coupler that divides the multiplexed optical signals transmitted from the second wavelength division multiplexer, so as to distribute the divided signals to the subscriber terminals, the optical divider coupler further coupling the upstream data service signals transmitted from the subscriber terminals.

11. (Original) The passive optical network system of claim 10, wherein the optical amplifier media is an erbium-doped fiber amplifier.

12 -14. (Canceled)

15. (New) The passive optical network system of claim 10, wherein the central office comprises:

a broadcasting optical source that outputs the broadcasting optical signals that provide a broadcasting service to the subscriber terminals;

a pumping optical source that outputs the pumping optical signals;

a downstream optical source that outputs the downstream optical signals that provide a downstream data service to the subscriber terminals;

an upstream optical receiver that receives the upstream data service signals transmitted from the subscriber terminals and then converts the received signals into electric signals; and

a central office wavelength division multiplexer for:

multiplexing the broadcasting optical signals, the pumping optical signals,

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and the downstream optical signals, such that the multiplexed signals are output, and
demultiplexing input upstream data service signals, such that the
demultiplexed signals are output to the upstream optical receiver.

16: (New) The passive optical network system of claim 10, wherein the central office comprises:

a plurality of broadcasting optical sources that output of the broadcasting optical signals having different wavelengths;

a first central office wavelength division multiplexer that multiplexes the broadcasting optical signals output from the broadcasting optical sources;

a pumping optical source that outputs the pumping optical signals;

a downstream optical source that outputs the downstream optical signals to provide downstream data service to the subscriber terminals;

an upstream optical receiver which receives the upstream data service signals transmitted from the subscriber terminals, such that the received signals are converted into electric signals; and

a second central office wavelength division multiplexer for:

multiplexing the multiplexed broadcasting optical signals, the pumping optical signals, and the downstream optical signals output from the downstream optical source, such that the multiplexed signals are output, and

demultiplexing the upstream data service signals, such that the demultiplexed signals are output to the upstream optical receiver.

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17. (New) The passive optical network system of claim 10, wherein the central office comprises:

a plurality of broadcasting optical sources that output different wavelengths of broadcasting optical signals having different wavelengths;

a central office first wavelength division multiplexer that multiplexes the broadcasting optical signals output from the broadcasting optical sources;

a pumping optical source that outputs the pumping optical signals;

a plurality of downstream optical sources that output the downstream optical signals having different wavelengths that provide downstream data service to the subscriber terminals;

a second central office wavelength division multiplexer that multiplexes the downstream optical signals output from the downstream optical sources;

an upstream optical receiver that receives the upstream data service signals transmitted from the subscriber terminals, such that the received signals are converted into electric signals; and

a third central office wavelength division multiplexer for:

multiplexing the broadcasting optical signals multiplexed by the first central office wavelength division multiplexer, the downstream optical signals multiplexed by the second central office wavelength division multiplexer, and the pumping optical signals output from the pumping optical source, such that the multiplexed signals are output, and

demultiplexing the upstream data service signals, such that the demultiplexed signals are output to the upstream optical receiver.